

Application No. 10/694,679
Docket No. 2003-0168.02
(58521.US/4665.0)

REMARKS

Claims 1-9 and 16-23 are in the application. Claims 10-15 have been cancelled by the foregoing amendment and claims 1 and 16 have been amended. The amendments to claim 1 are made merely to more clearly and distinctly claim the invention. Claim 16 is amended to incorporate the process steps of cancelled claim 10. The specification was amended, in accordance with the examiner's request, to correct a minor inadvertent typographical error. No new matter is entered into the case by the amendment.

In the Office Action, the restriction requirement was made final. Applicants were requested to cancel claims 10-16. However, applicants elected the Group I claims where were product claims. The Group II claims were said to be method claims. Applicants assert that claim 16 is also a product claim and should be grouped with the group I claims. According to the MPEP §806.05(f):

"A product defined by the process by which it can be made is still a product claim (*In re Bridgeford*, 357 F.2d 679, 149 USPQ 55 (CCPA 1966)) and can be restricted from the process if the examiner can demonstrate that the product as claimed can be made by another materially different process; defining the product in terms of a process by which it is made is nothing more than a permissible technique that applicant may use to define the invention."

Hence, applicants believe the Groups provided in the Office Action dated June 1, 2005 were correct. Since claim 16 is a product claim it should be included in the Group I claims which Applicants properly elected in the response filed on June 13, 2005. Applicants therefore request that the examiner reconsider and withdraw the requirement to cancel claim 16.

In the Office Action, claims 1-5, 8-9, 17-20 and 23 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 6,024,440 to Murthy et al. Claims 6-7 and 21-22 were rejected under 35 U.S.C. §103(a) as being unpatentable over the '440 patent. The rejections are respectfully traversed.

The invention relates to a method for decoupling the dimensions of the nozzle bore lengths from the flow feature dimension height. Such decoupling of the

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dimensions is achieved by providing a separate thick film layer and laser ablated nozzle plate material as illustrated in FIGS. 4-6.

Prior art ink jet printheads are illustrated in FIGS. 2-3. In FIG. 2, the nozzle plate contains a thin film adhesive layer and no thick film layer. FIG. 3 illustrates a printhead having a relatively thin nozzle plate 44 attached to a thick film layer 48 wherein the nozzle plate only contains nozzle holes. By contrast, the invention provides a thick film layer and a nozzle plate wherein a portion of the flow feature dimensions is laser ablated in the nozzle plate and provided in the thick film layer.

In the prior nozzle plate illustrated in FIG. 2, the bore length of the nozzle hole 42 cannot be changed without also changing the ink chamber 34 height. An increase in the bore length of the nozzle hole 42 requires that the ink chamber 34 height be decreased and vice versa. Likewise, using a prior nozzle plate and thick film layer as illustrated in FIG. 3 wherein the nozzle plate contains only nozzle holes requires that the height H2 of all of the flow features be the same when the nozzle plate has a thickness that provides the nozzle holes with a predetermined bore length. As set forth in the specification on page 6, lines 19-21, the height dimension H2 of all of the flow feature cannot be easily varied for adjacent ink supply channels 52 and ink chambers 50 with this prior art design.

An advantage of the present invention is that an ink channel, such as ink channel 72 may have a height H4 that is different from a height H5 of an ink chamber 74 as described in the specification on page 7, lines 20-28 and these flow feature dimensions may be varied independently from the bore length L4 of the nozzle hole 86.

A. Claims 1-5, 8-9, 17-20 and 23 Are Not Anticipated by the Cited Reference.

In the §102(b) rejection of claims 1-5, 8-9, 17-20 and 23, the '440 patent to Murthy et al. is cited. According to column 3, lines 7-16 of the '440 patent, the nozzle member 18 includes a polyimide polymer tape with an adhesive layer on one side thereof. Column 4, lines 23-27 of the '440 patent specifically identifies item 47 in FIG. 5 as an adhesive layer. Column 2, lines 21-26 of the '440 patent states that the drawings

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are not to scale. Accordingly, the nozzle member 18 described in the '440 patent is substantially similar to the nozzle plate 30 illustrated in FIG. 2 wherein the nozzle plate contains a thin film adhesive 32 and all of the flow feature dimensions are formed only in the nozzle plate 30. In FIG. 2 of the present application, the thin film adhesive 32 is part of the nozzle plate 30 and is not a separate thick film layer. Likewise, the adhesive layer 47 in FIG. 4 of the '440 patent is part of the nozzle member 18 and is not a separate thick film layer.

It is well settled law that anticipation requires that each and every limitation of the claims be found in the cited reference, either explicitly or inherently. Claims 1 and 7 require a thick film layer in addition to a nozzle plate, whether or not the nozzle plate contains the optional thin film adhesive layer 57 (FIG. 4) or 78 (FIG. 5). While the '440 patent describes a nozzle member 18 containing a thin film adhesive layer 47, the '440 patent fails to teach, suggest, or disclose a thick film layer. Since the '440 patent fails to teach, suggest, or disclose the thick film, the '440 patent also fails to teach, suggest, or disclose flow features having dimensions formed in the thick film layer. Thus, claims 1 and 17 are not anticipated by the '440 patent.

Claims 2-5 and 8-9 depend from claim 1, and claims 18-20 and 23 depend from claim 2 and provide additional patentable features for the invention. Since the cited reference fails to anticipate the independent claims 1 and 17, the reference also fails to anticipate claims 2-5, 8-9, 18-20 and 23 dependent from claims 1 and 17. Because the '440 patent fails to teach or disclose all of the elements of the claimed invention, the rejection of claims 1-5, 8-9, 17-20 and 23 over the '440 patent is wholly untenable and should be withdrawn.

B. Claims 6-7 and 21-22 are Patentably Distinguished Over the Cited Reference.

Claims 6-7 depend from claim 1 and claims 21-22 depend from claim 17. Claims 6-7 and 21-22 are patentable over the '440 patent for the same reasons claims 1 and 17 are patentable over the '440 patent as discussed in Section A above.

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The examiner admits that the '440 patent fails to suggest or disclose the specific thickness dimensions and height dimensions called for in claims 6-7 and 21-22. In an attempt to support the rejection of claims 6-7 and 21-22, the examiner makes the assertion that the general conditions of claims 6-7 and 21-22 are disclosed by the '440 patent. However, as explained above, there is nothing in the '440 patent that suggests or discloses a thick film layer in addition to the nozzle member and thin film adhesive layer. Accordingly, there is absolutely no basis for the assertion that the general conditions of claims 6-7 and 21-22 are disclosed by the '440 patent. Hence, the §103(a) rejection of claims 6-7 and 21-22 is also wholly untenable and should be withdrawn.

Applicants do not intend to surrender any range of equivalents under the Doctrine of Equivalents in regard to any claim limitation that appears in the final claims in any patent that may issue from this or any related application. Applicants expressly reserve the right to resort to the Doctrine of Equivalents for all limitations in regard to any future assertion of infringement of any claim, whether the limitation was present in an original claim, added by amendment to a claim, or referenced in any argument to distinguish any claim from any prior art. All claims in any patent issued from this or any related application represent a statutorily presumed valid and patentable combination of structure and/or steps, and it is this combination which is presumed to patentably distinguish the claims from the prior art, not any particular limitation of any claim.

In the event this response is not timely filed, Applicants hereby petition for the appropriate extension of time and request that the fee for the extension along with any other fees which may be due with respect to this paper be charged to our Deposit Account No. 12-2355.

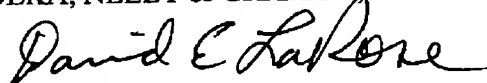
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If the Examiner identifies further issues which may be resolved by telephone,
the Examiner is kindly invited to contact the undersigned at (865) 546-4305.

Respectfully submitted,

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By:



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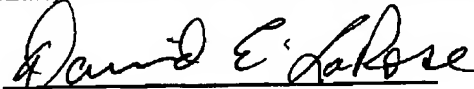
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*** * * CERTIFICATE OF FACSIMILE TRANSMISSION * * ***

I hereby certify that this correspondence is being facsimile transmitted to the U.S. Patent Office to Group
Art Unit 2853, Attn: Examiner Juanita Stephens, Fax No. 571-273-8300, on the date shown below.

Date: September 15, 2005



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